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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,558	01/10/2002	Wolfram Burst	52097	2747
26474 7590 12/19/2006 NOVAK DRUCE DELUCA & QUIGG, LLP 1300 EYE STREET NW SUITE 400 EAST TOWER WASHINGTON, DC 20005			EXAMINER SINGH, PREM C	
			ART UNIT 1764	PAPER NUMBER
			MAIL DATE 12/19/2006	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action  
Before the Filing of an Appeal Brief**

Application No.

10/041,558

Applicant(s)

BURST ET AL.

Examiner

Prem C. Singh

Art Unit

1764

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 30 November 2006 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.  
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ They raise the issue of new matter (see NOTE below);  
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

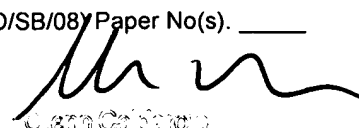
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
The status of the claim(s) is (or will be) as follows:  
Claim(s) allowed: \_\_\_\_\_.  
Claim(s) objected to: \_\_\_\_\_.  
Claim(s) rejected: 1,3 and 6-15.  
Claim(s) withdrawn from consideration: \_\_\_\_\_.

**AFFIDAVIT OR OTHER EVIDENCE**

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Continuation Sheet.  
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_.  
13. ☐ Other: \_\_\_\_\_.

  
Prem C. Singh  
Supervisory Patent Examiner  
Art Unit 1764

Continuation of 11. does NOT place the application in condition for allowance because: The Applicant argues about the examiner's assertion "The Applicant's amendment necessitated new grounds of rejection and accordingly, THIS ACTION IS MADE FINAL".

The Applicant's argument is persuasive because there was no amendment (except the re-wording of claim 14) and likewise, no new grounds of rejection. However, it is to be noted that no new art was used, and the same rejection was used as before (Office action dated: 03/02/2006). Therefore, the finality of the last Office action (dated: 08/31/2006) is correct.

Claim rejection under 35 USC 102:

The Applicant argues that Perry does not disclose each and every element of claim 1, arranged as in the claim. The Applicant further argues that according to instant claim 1, A, B and H form two binary azeotropes, AH and BH. In addition thereto, H is theoretically capable of forming a ternary azeotrope with A and B. Also, in the process of instant claim 1, the AH and BH containing fractions are isolated; that is, pure A or pure B are not formed. In contrast, Perry discloses the isolation of pure B (ethanol) and the formation of a ternary azeotrope. While Perry does appear to list ethanol-benzene and water-benzene, the disclosure is in the context of a table listing "Minimum-boiling-point azeotropic mixtures", not as the product of anything reading on Applicant's claimed invention.

The Applicant's argument is not persuasive because Perry discloses two binary azeotropes (Table 13-10, page 13-38): ethanol-benzene and water-benzene. Perry's disclosure of the two azeotropic mixtures are similar to the ones claimed by the Applicant. Perry shows removal of ethanol (B) from column A and water (A) from column D. It is to be noted that Perry does not show benzene (H) either with ethanol or with water. But, according to the law of mass conservation, if benzene (H) is being added as a makeup stream at the top of column A, there has to be some loss of benzene (H) in the process. Thus clearly, benzene (H) is coming out partly with ethanol and partly with water. This implies that Perry is not getting pure (A) and Pure (B), but (AH) and (BH). Thus, the Applicant's diagram (Page 4 of 8) showing Perry's approach is not persuasive. Mixture (ABH) stays inside the column and not taken out as a product. Thus, the final product is not (B + ABH). It is (AH) + (BH).

The Applicant argues that mere listing of selected binary azeotropes, which happen to include the azeotropes taught in Applicant's process, fails to disclose each and every element of the instant claimed invention as arranged in the claims.

The Applicant's argument is not persuasive because Perry shows similar azeotropic mixtures, similar entrainer, and similar process of separation as claimed by the Applicant.

The Applicant argues that Perry discloses that benzene is obtained as an overhead product of the distillation column A and not as a bottom product as recited in instant claim 6.

The Applicant's argument is not persuasive because Perry is not obtaining benzene as an overhead, rather, adding the makeup benzene in Column A.

The Applicant argues that table 13-10 is merely a listing of boiling points of binary azeotropes and there is no relationship between the table and figure 13-44 illustrating distillation.

The Applicant's argument is not persuasive because Perry has demonstrated one set of azeotropic-mixture-separation selected from the table.

The Applicant argues that because Perry does not disclose the formation of two binary azeotropes AH and BH as arranged in claim 1, and only discloses the formation of Pure B and a ternary azeotrope mixture (i.e., B and ABH), Perry fails to anticipate claim 1 and those claims depending therefrom.

The Applicant's argument is not persuasive because although Perry does not specifically mention, the process does separate the components as (AH) and (BH) as explained earlier.

Claim Rejections under 35 USC 103

The Applicant argues that independent claim 1 stands free of prima facie obviousness. Claims 3, 7, 8, 11, 12, 14 and 15 depend from claim 1 and as such, also stand free of prima facie obviousness. As the Federal Circuit stated in *In re Fine*, "[d]ependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious" (837 F.2d at 1076). Accordingly, prima facie obviousness has not been established. The Applicant further argues that a similar argument was raised in the Response to Arguments section dated: 02 August 2006 and examiner failed to acknowledge said argument. Thus, examiner did not comply with 37 CFR 1.112.

The Applicant's argument is not persuasive because rejection of claims 1, 6, 9, 10, and 13 under 35 USC 102 is based on their anticipation by Perry. Rejection of claims 3, 7, 8, 11, and 15 under 35 USC 103 is based on their obviousness over Perry. The dependent claims 3, 7, 8, 11, and 15 add further limitations over independent claim 1 and therefore, are not anticipated, but they are obvious. The examiner should have mentioned in the Response to Arguments dated 08/31/2006 that rejection of independent claim 1 under 35 USC 102, and rejection of dependent claims 3, 7, 8, 11, and 15 under 35 USC 103 is correct.

The Applicant argues that while Perry describes introducing benzene via a top region of a distillation column, Perry nonetheless discloses the formation of ternary azeotropes. The Examiner, in the Response to Arguments section, page 10 of the 31 August

2006 Office Action, fails to acknowledge this distinction. The Examiner's statement regarding the availability of computers does alter this distinction nor does it render Applicant's argument moot.

The Applicant's argument is not persuasive because Office action dated 08/31/2006 (Page 11, paragraph 2) does respond to the above argument. The use of computers has been cited by Perry to investigate the feed- and solvent- introduction points (see Office action, dated 08/31/06, page 10, paragraph 3).

The Applicant argues that the Examiner has employed an improper obviousness standard. To establish prima facie obviousness, the Examiner must show in the prior art some suggestion or motivation to make the claimed invention, a reasonable expectation for success in doing so, and a teaching or suggestion of each claim element. The Applicant further argues that if the Examiner has personal information not of record used to establish the motivation to reduce purity in a process designed for 100% purity, Applicant respectfully requests an Examiner's affidavit, as set forth in MPEP 1.104(d)(2), indicating the use of personal knowledge and allowance for Applicant to respond to said personal knowledge.

The Applicant's argument is not persuasive because Perry discloses, "The process can be used to separate components which themselves form an azeotrope or boil so closely together that separation by simple distillation would require too many stages." (Perry, page 13-41, column 1, paragraph 2). This clearly indicates that degree of separation is dependent on the number of stages.

The Applicant argues that a person having ordinary skill in the art at the time the invention was made would not have been motivated to modify Perry and choose the auxiliary H so that it formed two binary azeotropes with the components to be separated and/or recognize that its introduction at the top region of the column prevented the formation of a ternary azeotrope. Likewise, specifically with regard to claim 11, one having skill in the art would not have recognized from Perry that the use of water as auxiliary H did not lead to the formation of a ternary azeotrope.

The Applicant's argument is not persuasive because Perry does show the formation of a ternary azeotrope, but it is only inside the distillation column. What comes out is only (AH) and (BH) binary azeotropes as mentioned earlier.



Adam Cichola  
Primary Patent Examiner  
Art Unit 1700